# “Tendency to the self-citation among journals in Iran and Turkey”

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## Abstract:

This paper explains the trends of Impact Factors and self-citation rates of journals indexed in the JCR by two neighbours countries Iran and turkey for a period of five years (2000- 2005).

All data extracted from the Journal Citation Reports – Science Edition (2000-2005).
The study showed that the portion of Turkish journals entering data to the JCR data bank is two times more than the portion of Iranian journals. From a total number of 6,088 journals in the JCR in 2005, 3 (0.05%) were published in Iran and the same number of journals published in Turkey. The 6,088 journals in the JCR produced 847,114 articles, 159 (0.02%) appeared in the Iranian journals and 352 (0.04%) in the Turkish journals. Of the 22,353,992 citations in 2005, 214 (0.001%) came from Iranian journals and 911 (0.004%) came from Turkish journals.
The self-citation tendency by Iranian journals has increased dramatically throughout the period of study, it reached from 8% self-citation rate in 2000 to 18% in 2005, an increase of 2.25 times, whereas the self-citation rate by Turkish journals showed a negative trend, its self-citation rate fell from 22% in 2002 to 15% in 2005.
The Impact Factors of Turkish journals showed faster growth than the Iranian journals, the mean value of Impact Factor for Turkish journals in 2000 was 0.49 under than the mean value of Impact Factor for Iranian journals, but in 2005 the mean value of Impact Factor for Turkish journals stayed 0.14 higher than the mean value of Impact Factor for Iranian journals.

## Keywords:

bibliometrics, Impact Factor, self-citation, JCR, journal citation, Iran, Turkey

## Introduction:

Gregoire Cote and Eric Archambault emphasized in their study about scientific collaboration between Canada and developing countries “most of the countries with low publication output have high growth rates, such that they are forecast to reach the Canadian level in a few years. This is the case for Iran and Turkey for example, and it is associated with significant development in their scientific systems: the numbers of institutions, programs and networks are growing, their research findings are being published in world-level journals, and their

scientists are increasingly participating in international conferences. Canada could develop collaborations with these countries that would be beneficial for both parties."[1]
Their findings showed that the collaboration of Iran and turkey in the term of publication with Canada, USA, Germany, UK and France throughout 1992-2003 is pretty different (table 7).

Umut AL and Mehdi Afzal in a study investigated a total number of 140 Iranian and Turkish publications indexed in the Social Sciences Citation Index (SSCI). Their study showed that "Total number of publications of two countries in the information science journals was 140; 85 from Turkey and the remaining 55 from Iran. When analyzed in ten-year time periods, the number of Iran addressed publications shows a kind of instability with certain rise and decline whereas the number of Turkey addressed publications appears to rise steadily. The most preferred information science journal for Iran is International Information & Library Review while for Turkey it is Scientometrics. More collaborative work is preferred by Turkish scholars than their colleagues in Iran. The majority of Iranian publications come from authors with a librarianship background whereas Turkish publications include authors with different backgrounds such as statistics, industrial engineering and physics. It is pointed out in this article that the number of publications from both countries does not match their potentials. In this respect, both countries need to increase their contributions and thus have a better position in the world of information science."[2]

Another study by A.UZUN investigated the publication efforts in physics for seven countries (Egypt, Iran, Iraq, Jordan, Saudi Arabia, Syria, and Turkey) in international journals through 1990-1994. His study showed that "The data on physics publications demonstrate the fact that Iran, Jraq, Syria, Jordan, S. Arabia, Egypt, and Turkey account for only 1.0% of the world physics literature in 1990-1994. Egypt led six others in the number of papers published in the journals indexed by the SCI over the years 1990-1994. Turkey, enjoying the highest rate of increase in the number of papers, is in the strong second position and if the current publication trends continue, it would overtake Egypt before the year 2000. These two countries account for 75 % of the total number of publications from the seven countries named above. I also found that the research activities particularly in Iran and Iraq are negatively affected from the Gulf War and the Iran-Iraqi war of the 1980s. However, Iran seems to be recovering quickly what she lost, while Iraq shows no signs of improvement."[3]

In other study Marie E. McVeigh examined all 5,876 journals listed in the 2002 Science Edition of the JCR.
She defined the self-citation rate as a percentage of the total citations to the journal in year of under study. She determined that 4,816 journals (82% of total coverage) had self-citations

[1] Gregoire Cote and Eric Archambault (2005). Scientific Collaboration between Canada and Developing Countries, 1992-2003. retrieved January 2, 2007 from http://www.science-metrix.com/pdf/SM_2005_002_CNS_Collaboration_Canada-Developing_Countries.pdf.

[2] Umut AL and Mehdi Afzal (2006).Contributions of Iran and Turkey to the World Information Science Literature: A Comparative Study. Bilgi Dünyas›, 7(2): 181-201.

[3] A. Uzun (1996). A BIBLIOMETRIC ANALYSIS OF PHYSICS PUBLICATIONS FROM MIDDLE EASTERN COUNTRIES, Scientometrics,Vol. 36, No. 2 259-269. Retrieved February 2 ,2007 from http://www.springerlink.com/content/t76597tj727p4k14/fulltext.pdf.

rates at or below 20 percent. The population showed a mean self-citation rate equal to 12.41, with a median of 9.04.

In my research about the JCR data bank, I have noticed that two neighbours' countries (Iran and turkey) have equal number of journals indexed in the JCR. There are a total number of 3 journals indexed in the JCR for each country. I extracted their data and compared the trends of Impact Factors, self-citation rates and their portion entering data to the JCR data bank.

"The *JCR* provides quantitative tools for ranking, evaluating, categorizing, and comparing journals. The impact factor is one of these; it is a measure of the frequency with which the "average article" in a journal has been cited in a particular year or period. The annual *JCR* impact factor is a ratio between citations and recent citable items published. Thus, the impact factor of a journal is calculated by dividing the number of current year citations to the source items published in that journal during the previous two years".[4]

Although the Impact Factor should be used cautious, "I expected that it would be used constructively while recognizing that in the wrong hands it might be abused."[5] But on the whole it is a feasible measurement in the hand of bibliometricians and librarians. It may help the librarians and the administrators of libraries in selecting journals to their patrons use in the libraries.

In this context I am interested in self-citation rate, the portion of journals citation to their previous literature, and the trend of Impact Factor for the journals of two neighbours' countries Iran and Turkey indexed in the JCR.
To determine the trend of journals Impact Factor and self-citation rate, all data of Iranian and Turkish journals indexed in the JCR throughout 2000-2005 were extracted and the mean values of journals Impact Factors and self-citation rate was calculated.

The study showed that the portion of Turkish journals entering data to the JCR data bank is two times more than the Iranian journals. From a total number of 6,088 journals in the JCR in 2005, 3 (0.05%) were published in Iran and the same number of journals published in Turkey. The 6,088 journals in the JCR produced 847,114 articles, 159 (0.02%) appeared in the Iranian journals and 352 (0.04%) in the Turkish journals. Of the 22,353,992 citations in 2005, 214 (0.001%) came from Iranian journals and 911 (0.004%) came from Turkish journals.

The analysis of data showed that the growth of Impact Factors by Turkish journals is 2 times faster than the Iranian journals; it may be so interpreted that they have attracted more attention by other authors from other journals and countries through the period of study; therefore they have received more citations than the Iranian journals. As a result their Impact Factors show faster raise through 2000-2005.

# Findings:

[4] The ISI Impact Factor. Retrieved 12 December 2006 from http://www.scientific.thomson.com/free/essays/journalcitationreports/impactfactor/.
[5] E. Garfield (19 October 199). Journal Impact Factor: a brief review, JAMC. Retrived December 14, 2006 from http://www.ecmaj.com/cgi/reprint/161/8/979.

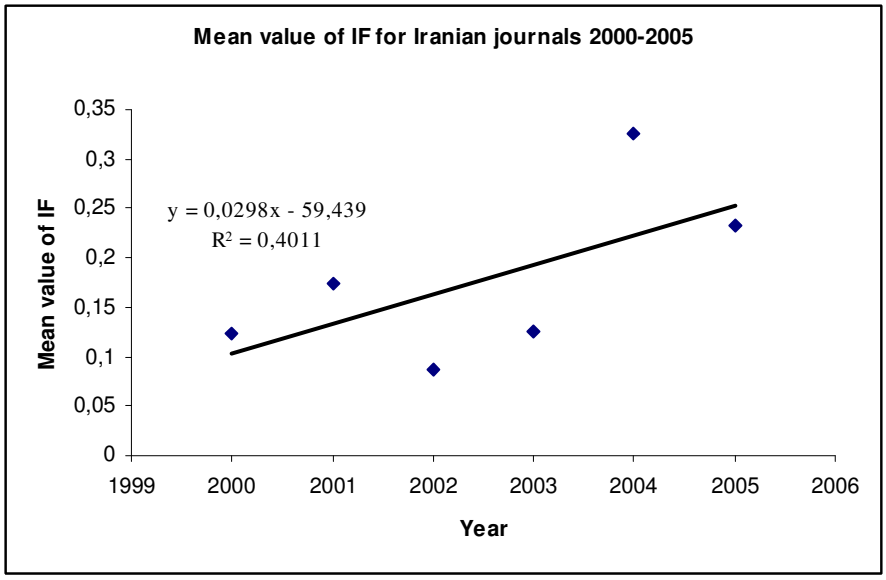


Fig.1: Mean value of IFs for Iranian journals in the JCR 2000-2005

As the graph shows the mean value of IFs for Iranian journals has increased 0.029 annual. The Impact Factor increases over year by a factor of 0.03 annual.

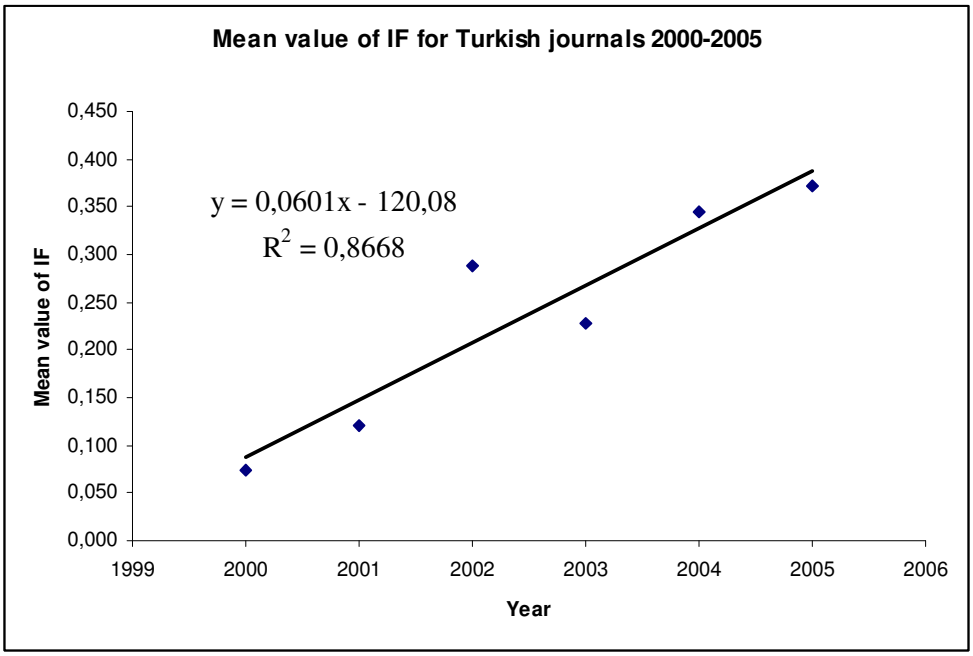


Fig. 2: The mean value of IF for Turkish journals 2000-2005

As the graph illustrates there is strong relationship between the mean value of journals IF and the year of publication. The Impact Factor increases over years by a factor of 0.06 annual.

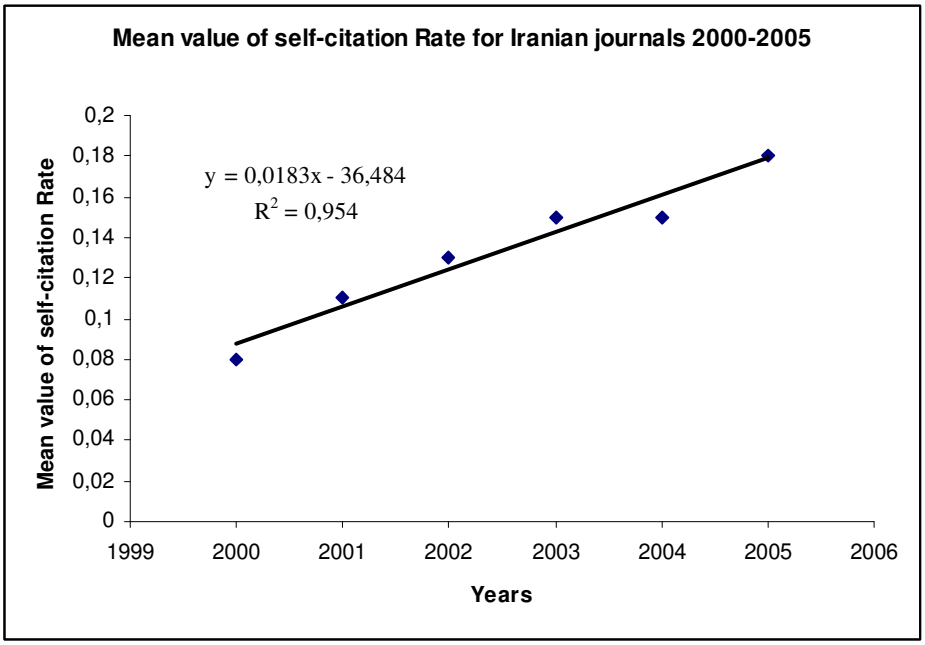


Fig. 3: the mean value of self-citation rate for Iranian journals 2000-2005

As the graph show the self-citation rate by Iranian journals has increased over years. There is a positive relationship between the self-citation rate and the year of publication.

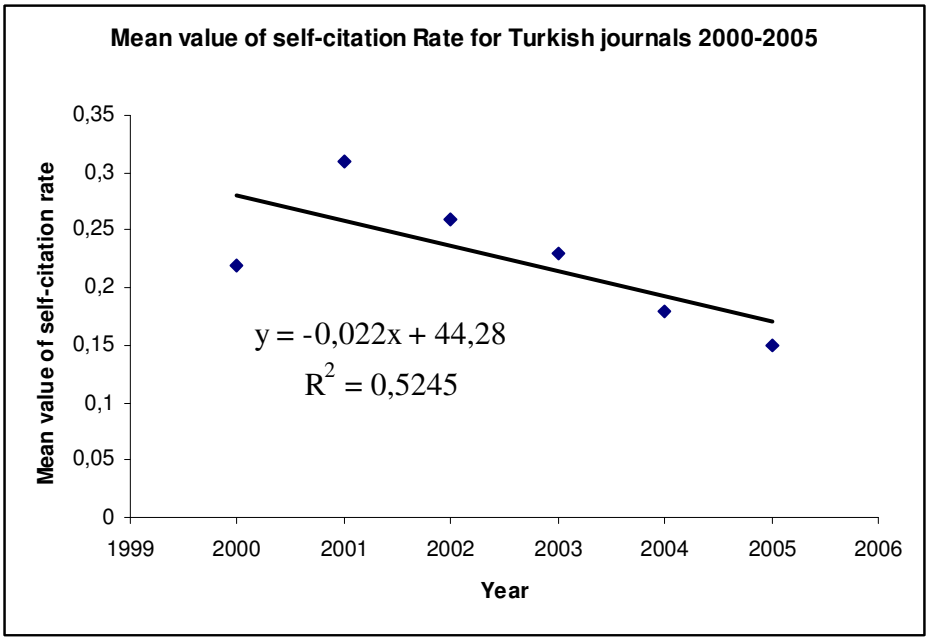


Fig. 4: The mean value of self-citation Rate for Turkish journals 2000 - 2005

There is a negative relationship between the self-citation rate and the year of publication among Turkish journals throughout the period of study. In other words the more the year passes the more the Turkish journals are cited by other journals.

Table 1

Iranian journals indexed in the JCR in 2000

| Journal Tittle (abbreviated) 2000 | ISSN | IF | Total citation | Self-citation | Self-citation Rate |
|---|---|---|---|---|---|
| IRAN J CHEM CHEM ENG | 1021-9986 | 0.154 | 32 | 1 | 0,03 |
| IRAN J SCI TECHNOL | 0360-1307 | 0.090 | 17 | 0 | - |
| IRAN POLYM J | 1026-1265 | 0.127 | 28 | 6 | 0,21 |

Table 2

Iranian journals indexed in the JCR 2005

| Journal Tittle (abbreviated) 2005 | ISSN | IF | Total citation | Self-citation | Self-citation Rate |
|---|---|---|---|---|---|
| IRAN J CHEM CHEM ENG | 1021-9986 | 0.327 | 66 | 9 | 0,14 |
| IRAN J SCI TECHNOL | 0360-1307 | 0.057 | 28 | 0 | - |
| IRAN POLYM J | 1026-1265 | 0.316 | 120 | 48 | 0,40 |

Comparison of table 1 and table 2 indicates that the self-citation rate of Iranian journals in 2005 is two times higher than the self-citation rate of the same set of journals in 2000.

Table 3

Turkish journals indexed in the JCR in 2000

| Journal Tittle (abbreviated)_2000 | ISSN | IF | Total citation | Self-citation | Self-citation Rate |
|---|---|---|---|---|---|
| TURK J CHEM | 1010-7614 | 0.119 | 84 | 9 | 0,11 |
| TURK J VET ANIM SCI | 1300-0128 | 0.018 | 18 | 8 | 0,44 |
| TURKISH J PEDIATR | 0041-4301 | 0.089 | 149 | 16 | 0,11 |

Table 4

Turkish journals indexed in the JCR 2005

| Journal Tittle (abbreviated) 2005 | ISSN | IF | Total citation | Self-citation | Sself-citation Rate |
|---|---|---|---|---|---|
| TURK J CHEM | 1300-0527 | 0.698 | 343 | 25 | 0,07 |
| TURK J VET ANIM SCI | 1300-0128 | 0.184 | 272 | 85 | 0,31 |
| TURKISH J PEDIATR | 0041-4301 | 0.236 | 296 | 23 | 0,08 |

As the table indicates the citations made by Turkish journals in the year 2005 is 99% higher with compare to the citations of the same set of journals in 2000, whereas the self-citation rate in 2005 shows 38 % decrease with compare to the self-citation rate of the same set of journals in 2000.

Table 5

Comparison of Iranian and Turkish journals indicators in 2000

| Country | Mean value of IF | Mean value of total citation | Mean value of self-citation | Mean value of self-citation rate |
|---|---|---|---|---|
| Iran | 0.124 | 25.67 | 2.33 | 0.08 |
| Turkey | 0.075 | 83.67 | 11 | 0.22 |

As the table illustrates the mean value of IF for Iranian journals in the 2000 is higher than the mean value of Turkish journals, but the mean value of self-citation rate among Turkish journals is 2.75 times more than Iranian journals.

Table 6
Comparison of Iranian and Turkish journals in 2005

| Country | Mean value of IF | Mean value of total citation | Mean value of self-citation | Mean value of self-citation rate |
|---|---|---|---|---|
| Iran | 0.233 | 71.33 | 19 | 0.18 |
| Turkey | 0.373 | 303.67 | 44.33 | 0.15 |

As the table shows the mean value of IF for Turkish journals stays higher than the IF of Iranian journals in the year 2005, whereas the mean value of self-citation rate for Iranian journals is 20% higher than the self-citation rate of Turkish journals.

Table 7
Percentage of Iran and Turkey publications collaboration with Canada, US, Germany, UK and France, NSE (1992-2003)

| | % of Iran collaboration | % of turkey collaboration |
|---|---|---|
| Canada | 15.2% | 3.8% |
| USA | 27.1% | 37.4% |
| Germany | 6.6% | 12.8% |
| UK | 20.4% | 19.2% |
| France | 5.2% | 6.6% |

Turkey shows more tendencies in collaborating with European countries in the term of publications as well as with the USA than Iran; on the other hand the collaboration of Iran with Canada is four times more than the collaboration of Turkey with Canada.

Table8
The portion of Iranian and Turkish journals entering material in the JCR data bank in 2005

| Origin of journals | No. of journal | percent | Articles | percent | Citations | percent |
|---|---|---|---|---|---|---|
| Iranian journals in the JCR | 3 | 0.05% | 159 | 0.02% | 214 | 0.001% |
| Turkish journals in the JCR | 3 | 0.05% | 352 | 0.04% | 911 | 0.004% |
| All journals in the JCR | 6,088 | 100.00% | 847,114 | 100.00% | 22, 353,992 | 100.000% |

The table illustrates, from a total number of 6,088 journals in the JCR in 2005, 3 (0.05%) were published in Iran and the same number published in Turkey. The 6,088 journals in the JCR produced 847,114 articles, 159 (0.02%) appeared in the Iranian journals and 352 (0.04%) in the Turkish journals. Of the 22,353,992 citations in 2005, 214 (0.001%) came from Iranian journals and 911 (0.004%) came from Turkish journals.

# Conclusion:

The study showed that the self-citation rate of Iranian journals has increased dramatically throughout the period of study, it reached from 8% self-citation rate in 2000 to 18% in 2005, an increase of 2.25 times.

The self-citation rate by Turkish journals showed in 2005 showed 47% decrease with compare to the year 2000. Its self-citation rate fell from 22% in 2000 to 15% in 2005.
With other words the self-citation rate by Iranian journals is upwards, whereas by Turkish journal is downwards. It may be such interpreted that the Turkish journals in comparison with Iranian journals have attracted more attention of authors from other journals and countries throughout the period of study.

The growth of IF by Turkish journals is 2 times faster than Iranian journals (Fig.1 and Fig.2) even thought the mean value of IF for Turkish journals in 2000 is 0.49 under than the mean value of IF for Iranian journals, but in 2005 the mean value of IF for Turkish journals stays 0.14 higher than the mean value of IF for Iranian journals.

The portion of Turkey entering data to the JCR data bank is two times more than the portion of Iran. From a total number of 6,088 journals in the JCR in 2005, 3 (0.05%) were published in Iran and the same number published in Turkey. The 6,088 journals in the JCR produced 847,114 articles, 159 (0.02%) appeared in the Iranian journals and 352 (0.04%) in the Turkish journals. Of the 22,353,992 citations in 2005, 214 (0.001%) came from Iranian journals and 911 (0.004%) came from Turkish journals.

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